SOUTH DAKOTA STATEWIDE FISHERIES SURVEY

2102-F21-R-41

Name: Lake Albert **County**: Kingsbury
Legal Description: T112N- R53W- Sec 1-3, 10-12, 14-15, 22
Location from nearest town: 1-1/2 miles east and 1 mile north of Badger, SD

Dates of present survey: June 18-19, 2008
Dates of last survey: July 7-9, 2003 (netting); September 15, 2003 (electrofishing)
Most recent lake management plan: F21-R-32 (January 1, 2000-December 31, 2004)
Management classification: Warmwater Marginal

Primary Game and Forage Species	Secondary and Other Species
Walleye	Black Bullhead
Yellow Perch	White Sucker
Northern Pike	Common Carp
	Bigmouth Buffalo

PHYSICAL DATA

Surface area: 3,699 acres **Watershed area**: Unknown acres
Maximum depth: 13 feet **Mean depth**: 8.8 feet
Volume: 14,000 acre feet **Shoreline length:**
Contour map available: Yes **Date mapped:** 2002
OHWM elevation: 1652.9 **Date set:** 2004
Outlet elevation: 1650.2 **Date set:** 2004
Lake elevation observed during the survey: Full
Beneficial use classifications: (6) warmwater marginal fish life propagation, (7) immersion recreation, (8) limited-contact recreation and (9) wildlife propagation and stock watering.

Introduction

Lake Albert was named in 1839 by John C. Fremont, noted explorer, for Col. J. J. Abert of the U.S. Army. The present name is a corruption of “Abert”. The last fisheries survey was conducted in 2003 because the lake had become too shallow to operate a boat or set nets and several partial winterkills had occurred. Fisheries management activities resumed in 2007 when water levels started to improve.

Ownership of Lake and Adjacent Lakeshore Property

Lake Albert is listed as a meandered lake in the State of South Dakota Listing of Meandered Lakes. The South Dakota Department of Game, Fish, and Parks (GFP) owns and manages a Lake Access Area on the east side of the lake and a Game Production Area (GPA) on the west side. The remainder of the shoreline is privately owned.

Fishing Access

The Lake Albert Access Area has a single lane boat ramp with a dock, public toilet, and excellent shore fishing access. Shore fishing is also available on the GPA on the west side of the lake.

Field Observations of Water Quality and Aquatic Vegetation

Turbidity reduced the Secchi reading to 31 cm (12 in) in 2008. A small amount of sago pondweed and patches of bulrushes were observed in shallow water and flooded trees can be found around the entire lake.

BIOLOGICAL DATA

Methods:

Lake Albert was sampled on June 18-19, 2008 with three overnight gill net sets and five overnight trap-net sets. The trap nets are constructed with 19-mm-bar-mesh (¾ in) netting, 0.9 m high x 1.5 m wide (3 ft high x 5 ft wide) frames and 18.3 m (60 ft) long leads. The gill nets are 45.7 m long x 1.8 m deep (150 ft long x 6 ft deep) with one 7.6 m (25 ft) panel each of 13, 19, 25, 32, 38 and 51-mm-bar-mesh (½, ¾, 1, 1¼, 1½, and 2 in) monofilament netting. Sampling locations are displayed in Figure 4.

Results and Discussion:

Gill Net Catch

Walleye (44.4%) was the most common species sampled in the gill nets followed by northern pike (20.9%), orange-spotted sunfish, common carp and white sucker (Table 1).

Table 1. Total catch from three overnight gill net sets at Lake Albert, Kingsbury County, June 18-19, 2008.

Species	Number	Percent	CPUE[1]	80% C.I.	Mean CPUE*	PSD	RSD-P	Mean Wr
Walleye	8	44.4	2.7	±1.1	18.3	--	--	--
Northern Pike	5	20.9	1.7	±1.5	2.5	--	--	--
O. S. Sunfish	2	0.9	0.7	±0.9	0.1	--	--	--
Common Carp	2	0.9	0.7	±0.9	0.0	--	--	--
White Sucker	1	10.9	0.3	±0.4	3.4	--	--	--

* 6 years (1993, 1995, 1997, 1999, 2001, 2003)

[1] See Appendix A for definitions of CPUE, PSD, and mean Wr.

Trap Net Catch

Common carp (43.8%) was the most common species sampled in the trap nets followed by black bullhead (20.5%), northern pike (19.2%), and bigmouth buffalo (16.4%) (Table 2).

Table 2. Total catch from five overnight trap net sets at Lake Albert, Kingsbury County, June 18-19, 2008.

Species	Number	Percent	CPUE[2]	80% C.I.	Mean CPUE*	PSD	RSD-P	Mean Wr
Common Carp	32	43.8	6.4	±2.9	0.1	100	88	89
Black Bullhead	15	20.5	3.0	±1.5	1.0	7	7	100
Northern Pike	14	19.2	2.8	±2.0	2.5	100	0	89
Bigmouth Buffalo	12	16.4	2.4	±0.9	0.0	100	58	77

* 6 years (1993, 1995, 1997, 1999, 2001, 2003)

Walleye

Management objectives:
1) To establish and maintain a walleye fishery when the lake is deep enough to support fish life.
2) To rear juvenile and adult walleyes for stocking in other South Dakota waters as needed.

Walleye stocking was resumed in 2007 as the lake started refilling. All walleyes sampled were from the 2007 fry stocking.

Table 3. Walleye gill-net CPUE, PSD, RSD-P and mean Wr for Lake Albert, Kingsbury County, 1999-2008.

	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	Mean*
CPUE	11.7		12.8		2.0					2.7	8.8
PSD	16		37		73					--	42
RSD-P	3		4		36					--	14
Mean Wr	88		87		84					--	86

*3 years (1999, 2001, 2003)

All Species

Few fish species survived the low water levels and partial winterkills (Table 4). Walleyes and yellow perch have been stocked since the lake started to refill (Table 5).

Table 4. Gill-net (GN) and trap-net (TN) CPUE for all fish species sampled in Lake Albert, Kingsbury County, 1999-2008.

Species	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008
SPS (GN)	0.7		--		0.8					--
SPS (TN)	--		--		--					--
COC (GN)	0.5		0.5		--					0.7
COC (TN)	--		--		--					6.4
WHS (GN)	6.3		4.7		2.0					0.3
WHS (TN)	--		--		--					--
SHR (GN)	0.5		0.5		--					--
SHR (TN)	---		--		--					--
BIB (GN)	3.2		--		0.2					--
BIB (TN)	--		--		--					2.4
BLB (GN)	3.7		1.0		0.7					--
BLB (TN)	--		--		--					3.0
CCF (GN)	0.2		--		0.3					--
CCF (TN)	--		--		--					--
NOP (GN)	2.8		4.2		3.8					1.7
NOP (TN)	--		--		--					2.8
WHB (GN)	3.5		15.2		8.0					--
WHB (TN)	--		--		--					--
OSF (GN)	--		--		0.2					0.7
OSF (TN)	--		--		--					--
YEP (GN)	14.7		56.7		0.3					--
YEP (TN)	--		--		--					--
WAE (GN)	11.7		12.8		2.0					2.7
WAE (TN)	--		--		--					--

SPS (Spottail Shiner), COC (Common Carp), WHS (White Sucker), SHR (Shorthead Redhorse), BIB (Bigmouth Buffalo), BLB (Black Bullhead), CCF (Channel Catfish), NOP (Northern Pike), WHB (White Bass), OSF (Orangespotted Sunfish), YEP (Yellow Perch), WAE (Walleye),

MANAGEMENT RECOMMENDATIONS

1. Stock northern pike, yellow perch and walleye as needed to establish and maintain fisheries and to provide fish for restocking in other waters.

2. Conduct lake surveys every other year to evaluate stocking success and provide information for anglers.

Table 5. Stocking record for Lake Albert, Kingsbury County, 1991-2008.

Year	Number	Species	Size
1991	700,000	Northern Pike	Fry
1992	1,750,000	Walleye	Fry
1994	3,500,000	Walleye	Fry
1996	5,250,000	Walleye	Fry
	37,875	Yellow Perch	Fingerling
	36,254	Yellow Perch	Adult
1997	2,000,000	Walleye	Fry
	120,205	Walleye	Fingerling
1999	35,373	Yellow Perch	Juvenile
2000	3,600,000	Walleye	Fry
	5,949	Yellow Perch	Adult
	12,880	Yellow Perch	Juvenile
2007	3,700,000	Walleye	Fry
2008	3,700,000	Walleye	Fry
	242,520	Yellow Perch	Fingerling

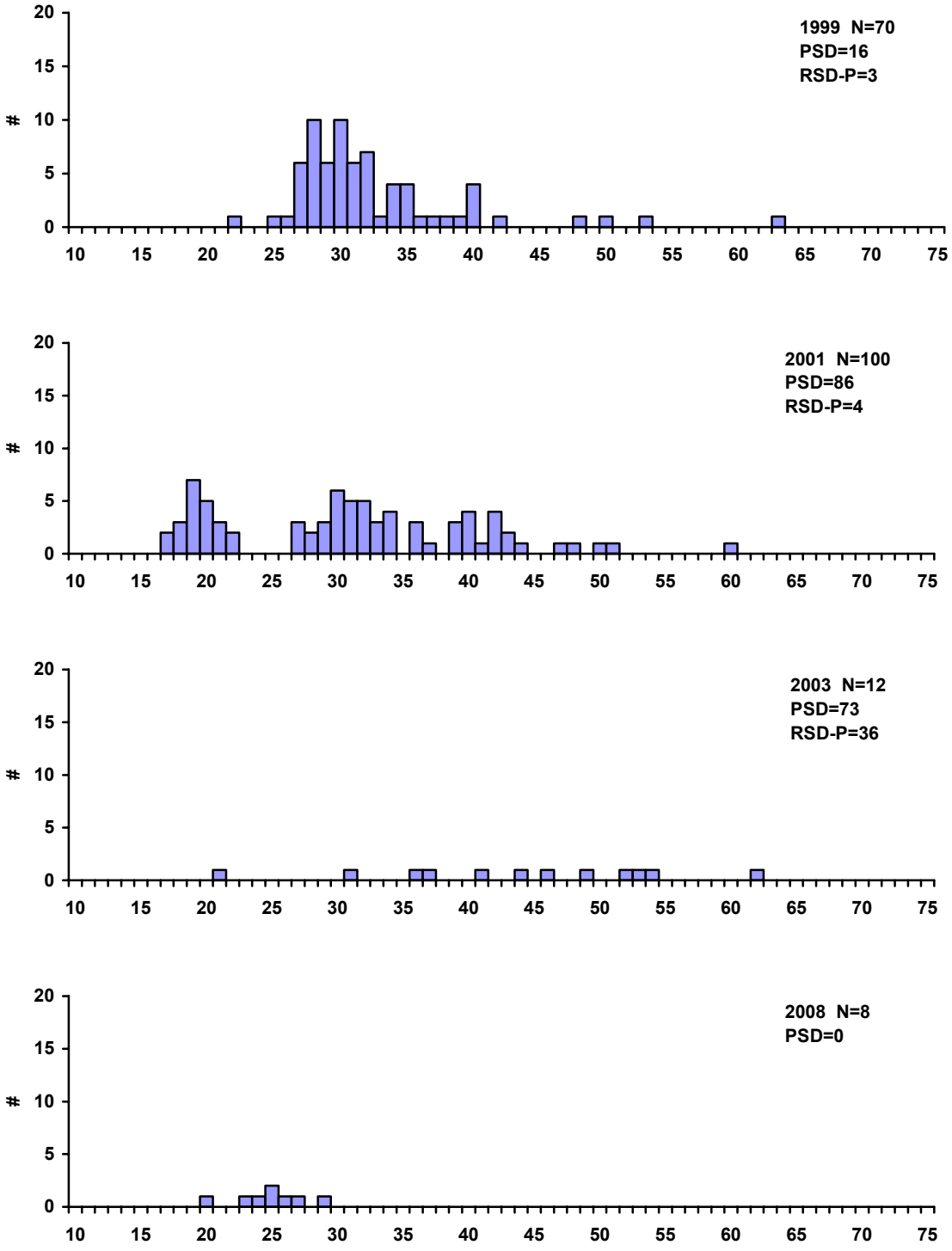

Figure 1. Length frequency histograms for walleye sampled with gill nets in Lake Albert, Kingsbury County, 1999, 2001, 2003 and 2008.

Appendix A. A brief explanation of catch per unit effort (CPUE), proportional stock density (PSD), relative stock density (RSD) and relative weight (Wr).

Catch Per Unit Effort (CPUE) is the catch of animals in numbers or in weight taken by a defined period of effort. This can be trap-net nights of effort, gill-net nights of effort, catch per hour of electrofishing, etc.

Proportional Stock Density (PSD) is calculated by the following formula:

$$PSD = \frac{\text{Number of fish} > \text{quality length}}{\text{Number of fish} \geq \text{stock length}} \times 100$$

Relative Stock Density (RSD-P) is calculated by the following formula:

$$RSD\text{-}P = \frac{\text{Number of fish} > \text{preferred length}}{\text{Number of fish} \geq \text{stock length}} \times 100$$

PSD and RSD-P are unitless and usually calculated to the nearest whole digit.

Size categories for selected species found in Region 3 lake surveys, in centimeters.

Species	Stock	Quality	Preferred	Memorable	Trophy
Walleye	25	38	51	63	76
Sauger	20	30	38	51	63
Yellow perch	13	20	25	30	38
Black crappie	13	20	25	30	38
White crappie	13	20	25	30	38
Bluegill	8	15	20	25	30
Largemouth bass	20	30	38	51	63
Smallmouth bass	18	28	35	43	51
Northern pike	35	53	71	86	112
Channel catfish	28	41	61	71	91
Black bullhead	15	23	30	38	46
Common carp	28	41	53	66	84
Bigmouth buffalo	28	41	53	66	84
Smallmouth buffalo	28	41	53	66	84

For most fish, 30-60 or 40-70 are typical objective ranges for “balanced” populations. Values less than the objective range indicate a population dominated by small fish while values greater than the objective range indicate a population comprised mainly of large fish.

Relative weight (Wr) is a condition index that quantifies fish condition (i.e., how much does a fish weigh for its length). A Wr range of 90-100 is a typical objective for most fish species. When mean Wr values are well below 100 for a size group, problems may exist in food and feeding relationships. When mean Wr values are well above 100 for a size group, fish may not be making the best use of available prey.